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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,156	09/19/2003	Reed Carver	Orb-008	7094
7590	09/08/2005		EXAMINER	
Brian Kolkowski Orbital Research Inc. 4415 Euclid Avenue Cleveland, OH 44103			JACKSON, ANDRE K	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/666,156	CARVER ET AL.
	Examiner André K. Jackson	Art Unit 2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 20 June 2005.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-3,10-12 and 14-18 is/are rejected.

7)  Claim(s) 4-9,13,19 and 20 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Objections***

1. Claims 10,13 and 16 are objected to because of the following informalities:

Regarding claims 1,10 and 16, the claims need a ":" --colon-- after comprising.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10,12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al.

Regarding claim 10, Shimizu et al. disclose in the patent entitled "Method of manufacturing semiconductor device having a pressure sensor" a sensing element and a heating a pressure-sensing element capable of heating the pressure-sensing element to at least about the application temperature of the pressure sensor (Column 3, lines 45-50; Column 4, lines 26).

Regarding claim 12, Shimizu et al. disclose where the heating element is capable of heating the sensing element to at least about the maximum application temperature of the pressure sensor (Column 3, lines 45-50).

Regarding claim 14, Shimizu et al. disclose where the heating element heats the sensing element to over 200°C (Column 3, lines 45-50).

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-3,5,8,9 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al. in view of Ellis.

Regarding claim 1, Fujii et al. disclose in the patent entitled "Method of fabricating a semiconductor pressure sensor" a substrate (1) with an opening; and a flexible diaphragm held across the opening of the substrate where at temperatures of at least about 200°C (Column 7, line 32). Fujii et al. do not disclose a gage factor of at least about 27 for the sensor. Ellis discloses in the patent entitled "Diffusion barrier materials for thick-film piezoresistors and sensors formed therewith" disclose a gage factor that falls in the range of at least about 27 for the sensor (Claim 20 gage factor greater than 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Fujii et al. to include a gage factor of at least about

27 for the sensor. By adding this feature the apparatus would be able to have a gage factor to fit the appropriate sensitivity of the device.

Regarding claim 2, Fujii et al. do not disclose where the pressure sensor has a gage factor of at least about 32. However, Ellis discloses where the pressure sensor has a gage factor, which falls in the range of at least about 32 (Claim 20, gage factor greater than 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Fujii et al. to include where the pressure sensor has a gage factor of at least about 32. By adding this feature the apparatus would be able to have a gage factor to fit the appropriate sensitivity of the device.

Regarding claim 3, Fujii et al. do not disclose where the pressure sensor has a gage factor of at least about 37. However, Ellis discloses where the pressure sensor has a gage factor, which falls in the range of at least about 37 (Claim 20, gage factor greater than 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Fujii et al. to include where the pressure sensor has a gage factor of at least about 37. By adding this feature the apparatus would be able to have a gage factor to fit the appropriate sensitivity of the device.

Regarding claim 16, Fujii et al. disclose a substrate with an opening having a maximum cross-sectional dimension of less than about 1.0 mm; and a flexible diaphragm (Figure 3; Column 11, lines 30-42). Fujii et al. do not disclose where the pressure sensor is capable of measuring pressures of greater than

1000 psi without premature failure. However, Ellis discloses that in order to reach pressures more than 1000psi a metal diaphragms must be used (Column 2, lines 2-5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Fujii et al. to include where the pressure sensor is capable of measuring pressures of greater than 1000 psi without premature failure. By adding this feature the user would be able to develop pressure sensors that are lower in cost and smaller in size, yet are characterized by high reliability, sensitivity and linearity.

Regarding claim 17, Fujii et al. disclose where the opening in the substrate has a maximum cross-sectional dimension of less than about 0.25 mm (Column 11, lines 30-42).

Regarding claim 18, Fujii et al. disclose where the flexible diaphragm has a thickness of less than 350  $\mu\text{m}$  extending across the opening of the substrate (Column 11, lines 30-42).

6. Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. in view of Fujii et al.

Regarding claim 11, Shimizu et al. do not disclose where the sensing element is a strain gage. However, Fujii et al. disclose where the sensing element is a strain gage (104). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Shimizu et

al. to include where the sensing element is a strain gage. By adding this feature the apparatus would be able to precisely measure the pressure in the system.

Regarding claim 15, Shimizu et al. do not disclose where the strain gage responds to deflection of a diaphragm. However, Fujii et al. disclose where the strain gage responds to deflection of a diaphragm (Column 1, lines 15-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Shimizu et al. to include where the strain gage responds to deflection of a diaphragm. By adding this feature the apparatus would be able to effectively measure the pressure within the system.

7. Claims 4-9,13,19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

8. Applicant's arguments with respect to claims 10,12 and 14 have been considered but are moot in view of the new grounds of rejection.

Applicant has argued that neither Fuji et al. nor Ellis teaches a gauge factor of at least about 27. Applicant has stated that Ellis shows a maximum gauge factor of 27. Applicant's claim calls for the gauge factor to be at least about 27. The term about is taken to mean "near" or "approximate", 20 and 25 are both certainly near 27. Ellis discloses a temperature of 125°C, which would

certainly fall in the range of at least about 200°C. Meanwhile, Fuji et al. disclose where the operating temperature is at least about 200°C.

Applicant has stated respectfully that the Examiner should have used a 103(b) rejection. The Examiner is confused as to how this would fit the current rejection. Here is a quotation of 103(b)

(1) Notwithstanding subsection (a), and upon timely election by the applicant for patent to proceed under this subsection, a biotechnological process using or resulting in a composition of matter that is novel under section 102 and nonobvious under subsection (a) of this section shall be considered nonobvious if-

(A) claims to the process and the composition of matter are contained in either the same application for patent or in separate applications having the same effective filing date; and

(B) the composition of matter, and the process at the time it was invented, were owned by the same person or subject to an obligation of assignment to the same person.

(2) A patent issued on a process under paragraph (1)-

(A) shall also contain the claims to the composition of matter used in or made by that process, or

(B) shall, if such composition of matter is claimed in another patent, be set to expire on the same date as such other patent, notwithstanding section 154.

(3) For purposes of paragraph (1), the term "biotechnological process" means-

(A) a process of genetically altering or otherwise inducing a single- or multi-celled organism to-

- (i) express an exogenous nucleotide sequence,
- (ii) inhibit, eliminate, augment, or alter expression of an endogenous nucleotide sequence, or
- (iii) express a specific physiological characteristic not naturally associated with said organism;

(B) cell fusion procedures yielding a cell line that expresses a specific protein, such as a monoclonal antibody;

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

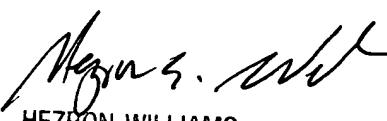
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

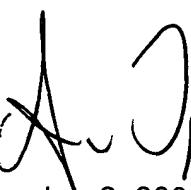
the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
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A.J.   
September 2, 2005